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1. A method of manufacturing single-walled carbon nanotubes comprising the steps of

    a) providing on a substrate at least one pillar comprising alternate layers of a first precursor material comprising fullerene molecules and a second precursor material comprising a catalyst; and

    b) heating the at least one pillar in the presence of at least one of a first magnetic, electromagnetic and electric field.

2. The method according to claim 1 wherein the substrate comprises at least one crystallization site for growing the single-walled carbon nanotubes.

3. The method according to claim 1 wherein the substrate comprises at least one of molybdenum and thermally oxidized silicon, and wherein said molybdenum is in the form of at least one of a grid and a solid film provided on a silicon wafer.

4. The method according to claim 1 wherein said at least one pillar comprises a number of layers of precursor material in a range between a lower number limit and an upper number limit, wherein the lower number limit is 5 layers of precursor material and the upper number limit is 10 layers of precursor material; wherein said layers are deposited upon each other; and wherein each layer has a thickness in a range between a lower thickness limit and an upper thickness limit, wherein the lower thickness limit is approximately 5 nm, and the upper thickness limit is approximately 30 nm.

5. The method according to claim 1 wherein the precursor materials are deposited through a shadow mask comprising one or more apertures.

6. The method according to claim 1 wherein the precursor materials are provided by thermal evaporation.

7. The method according to claim 6 wherein the evaporation of the precursor materials is performed at a pressure of approximately 10^{-9} Torr, and wherein the substrate is kept at approximately room temperature.

8. The method according to claim 6 wherein the evaporation of the precursor materials is controlled by using a shuttering mechanism and an in situ balance for monitoring deposition rate for the precursor materials.

9. The method according to claim 6 wherein the evaporation is controlled such that the thickness of the layers decreases with their distance from the substrate.

10. The method according to claim 1 wherein the heating is performed up to a temperature of approximately 950°C in one of a vacuum of approximately 10^{-6} Torr and an atmosphere substantially of inert gas, for a time ranging between a lower time limit and an upper time limit, wherein said lower time limit is approximately 3 minutes and said upper time limit is approximately an hour.

11. The method according to claim 1 wherein the first magnetic field is oriented in a direction approximately normal to the surface of the substrate during heating.

12. The method according to claim 1 wherein the first magnetic field is concentrated onto the at least one pillar being heated.

13. The method according to claim 1 wherein a plurality of the at least one pillars are provided, and wherein the first magnetic field is applied in a plurality of orientations onto the plurality of the at least one pillars.

14. The method according to claim 1 further comprising the step of thermally annealing said single-walled carbon nanotubes in the presence of a second magnetic field.

15. The method according to claim 14 wherein the direction of the second magnetic field differs from the direction of the first magnetic field.

16. The method according to claim 1 wherein in the electric field is oriented in a direction approximately parallel to the surface of the substrate.

5   17. A precursor arrangement for manufacturing single-walled carbon nanotubes comprising:

a substrate; and

at least one pillar located on said substrate, said at least one pillar in turn comprising alternate layers of a first precursor material comprising fullerene molecules and a second precursor material comprising a catalyst.

10   18. The precursor arrangement according to claim 17, wherein the layers have a thickness that decreases with their distance from the substrate.

19. The precursor arrangement according to claim 17, wherein the substrate has at least one crystallization site for growing the single-walled carbon nanotubes.

20. The precursor arrangement according to claim 19, wherein said substrate comprises at

15   least one of molybdenum and thermally oxidized silicon, wherein said molybdenum is in the form of at least one of a grid and a solid film provided on a silicon wafer.

21. The precursor arrangement according to claim 17, wherein the second precursor material comprises a magnetic material.

22. The precursor arrangement according to claim 21, wherein the magnetic material is

20   selected from the group consisting of Ni, Co, Fe, Mo.

23. A nanotube arrangement comprising:

a substrate; and

at least one crystal located on said substrate, said at least one crystal in turn comprising a bundle of single-walled carbon nanotubes with approximately identical orientation and structure.

24. The nanotube arrangement according to claim 23, wherein the substrate has a surface with crystallization sites wherefrom the single-walled carbon nanotubes have grown.

25. The nanotube arrangement according to claim 24, wherein the substrate comprises at least one of molybdenum and thermally oxidized silicon, and wherein said molybdenum is in the form of at least one of a grid and a solid film provided on a silicon wafer.

26. The nanotube arrangement according to claim 23 further comprising a plurality of said at least one crystals, wherein said plurality of said at least one crystals are substantially parallel to each other.

27. The nanotube arrangement according to claim 23 wherein the single-walled carbon nanotubes are substantially straight along their length.

28. A nanotube crystal comprising a bundle of straight single-walled carbon nanotubes with approximately identical orientation and structure.

29. A display comprising:

at least one nanotube arrangement, said at least one nanotube arrangement in turn comprising:

a substrate; and

at least one crystal located on said substrate, said at least one crystal in turn comprising a bundle of single-walled carbon nanotubes with approximately identical orientation and structure.

5   30. An electrical circuit comprising:

at least one nanotube arrangement, said at least one nanotube arrangement in turn comprising:

a substrate; and

10   at least one crystal located on said substrate, said at least one crystal in turn comprising a bundle of single-walled carbon nanotubes with approximately identical orientation and structure.

31. A switching element comprising:

at least one nanotube arrangement, said at least one nanotube arrangement in turn comprising:

15   a substrate; and

at least one crystal located on said substrate, said at least one crystal in turn comprising a bundle of single-walled carbon nanotubes with approximately identical orientation and structure.

32. A display comprising:

at least one nanotube crystal, said at least one nanotube crystal in turn comprising a bundle of straight single-walled carbon nanotubes with approximately identical orientation and structure.

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33. An electrical circuit comprising:

at least one nanotube crystal, said at least one nanotube crystal in turn comprising a bundle of straight single-walled carbon nanotubes with approximately identical orientation and structure.

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34. A switching element comprising:

at least one nanotube crystal, said at least one nanotube crystal in turn comprising a bundle of straight single-walled carbon nanotubes with approximately identical orientation and structure.

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